

WSUD: Inter-disciplinary Urban Water
Research

LOW IMPACT URBAN DESIGN AND DEVELOPMENT

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Rationale for our approach

- Happy coincidence of expertise & events 2001-3
- Creation of our joint Centre for Urban Ecosystem Sustainability (CUES)
- Recognition of need to focus on implementation of scientific knowledge along with stakeholder support
- Government support for research on sustainable cities
- Inter-disciplinary 'gaze' of research funders a strong driver (*requiring co-operation in a highly competitive environment*)

LIUDD Programme in NZ

- Led by Landcare Research with University of Auckland, private companies, iwi and other partners
- Funded from 2003-2009; \$1.5m pa
- Large research team drawing on environmental science, economics, social sciences, planning
- Four themes-
 - *Human and social dimensions of 'buy-in'*
 - *Application of science and design*
 - *Development of new economic tools*
 - *Implementation through change of policies and practices*

LIUDD in New Zealand

- Builds on LID and WSUD
- An integrated approach to design and development-making links with planning, urban design & sustainable design
- Aims to avoid a wide range of adverse effects from conventional urban development, protect aquatic & terrestrial ecological integrity & enable urbanisation at a range of densities

How can we mainstream low impact urban design and development in urban development processes and practices?

Selected social questions:

- How do we achieve buy-in from stakeholders?
- How can organisational change be managed to facilitate LLIUDD?
- What mix of policy and planning instruments can be used?
- What private governance models are effective for managing LIUDD features on private land?

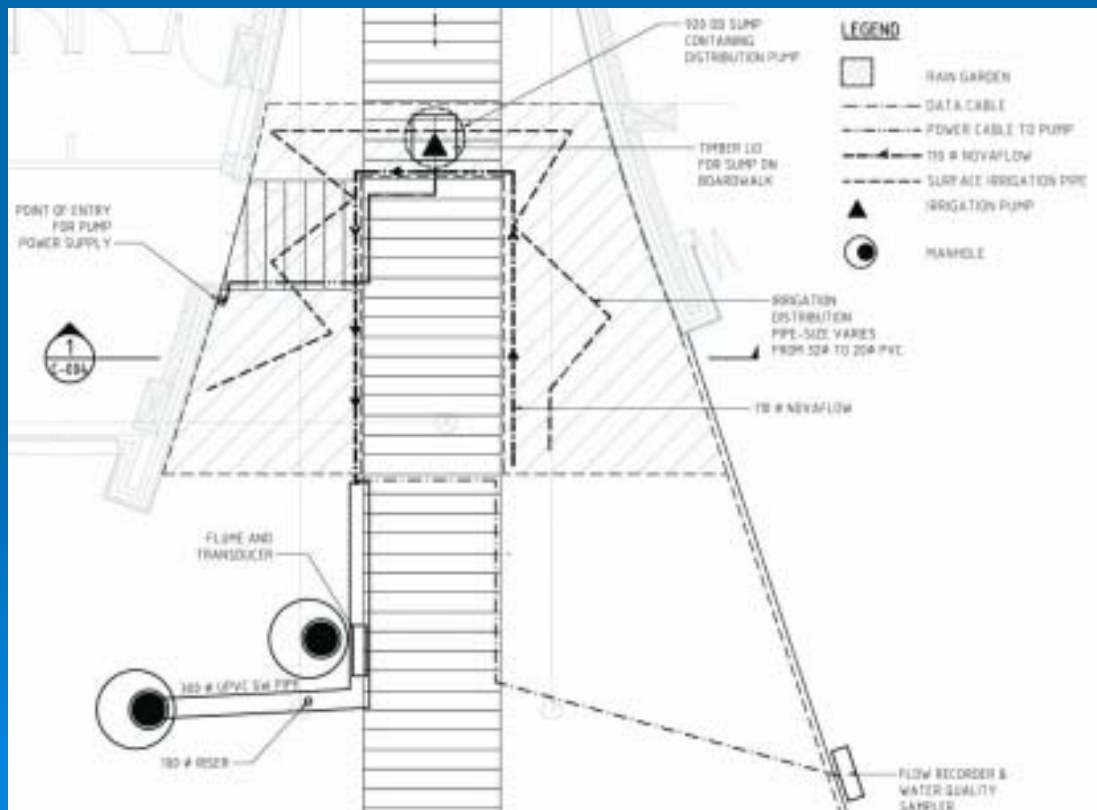
Getting Buy-in

Overcoming social & institutional barriers to LIUDD

- Focus on collaborative learning through case studies through learning networks- eg *Maori, rain tanks, evaluation of LIUDD*
- Documenting process of LIUDD implementation in case studies
- Reporting change over time via interviews with stakeholders
- Facilitating website and on-line users guide

Application of Science & Design

Design, measure and establish ecological & stormwater management devices



- Testing
- With engineers and end users produce designs that work
- Feedback to Regional Council & Local Councils
- Work with economists on cost benefit

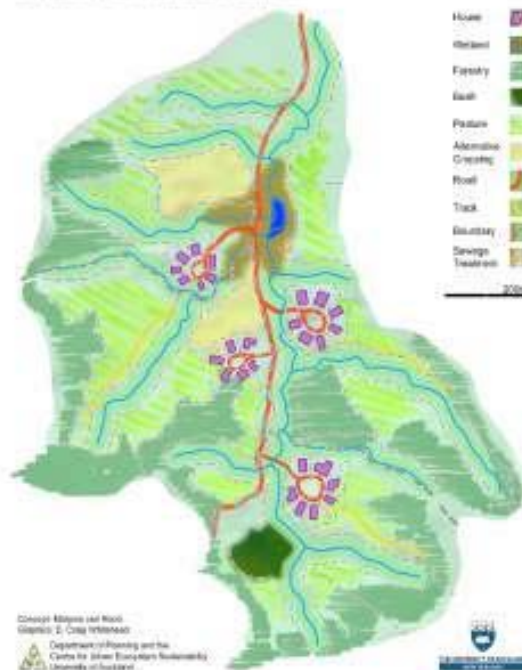
Performance at neighbourhood and catchment scales

Implementing LIUDD & sustainable design principles in several case studies

Simulated Rural Catchment
Map 2 Conventional Rural-Residential (4ha lots)



Simulated Rural Catchment
Map 3 Low Impact Rural-Residential Concept Plan



Economic Tools for LIUDD

A mix of public and private investment in LIUDD that maximises benefit to the community

- Determine private & public benefits & costs of LIUDD at different spatial scales (*household, neighbourhood, catchment*)
- Evaluate alternative institutional mechanisms to maximise community benefit from urban development

Focus

- Evaluating cost-effectiveness of low impact development
- Valuing its environmental benefits
- Facilitating change through incentives, pricing and policy

Changing Plans and Practices

To facilitate uptake of LIUDD by stakeholders

- Developing an implementation framework with a mix of policy & planning tools for LIUDD
- Working alongside councils & MfE to facilitate change, *eg National Task Force, ARC workshops, national urban design workshops*
- Developing guidelines for private governance of LIUDD features on residential sites with common ownership interests
- Testing LIUDD principles and methods against case studies

Challenges

- Takes considerable time to build relationships and work with new colleagues - all with widely varied experiences in collaboration
- Some disciplines more oriented to inter-disciplinary collaboration than others (*eg planning*) so different starting points for team members
- Recognising & respecting other perspectives & ways of working- translating disciplinary languages & meanings
- Some people more attuned to collaborative work than others

Challenges ...

- Organisational arrangements can create silos & compartmentalise tasks (*efficiency v ideal*)
- Delineating tasks can also exacerbate disciplinary focus & potentially reduce prospects of collaboration
- Reconciling different organisational & personal goals in terms of outputs (*academic v applied*)
- Defining & reshaping research boundaries in respect of other programmes

Challenges ...

- Technology cannot always overcome geographical barriers to collaboration
- Juggling high workloads on stretched budgets can reduce time for collaboration
- Building a team with sufficient breadth of skills-
reliance on consultants to fill gaps (*realities of a labour market shortage*)
- Dealing with the unanticipated - *organisational restructuring, stakeholder resistance*
- How to ensure transfer of inter-disciplinary expertise for the next generation of projects?

Benefits

- Learning about and integrating other disciplinary contributions
- Establishing new collegial relationships both inside and outside of the programme
- Building on new initiatives that arise as a consequence of the research
- Changing and sharpening our thinking- recognition that implementation and capacity issues critical for changing organisations and individual 'buy-in'

Lessons for others in a perfect world!

- Takes long time to create inter-disciplinary research from multi-disciplinary teams
- Build in sufficient time to budgets to support collaboration - make as specific tasks, otherwise can be seen as desirable & optional 'extras'
- Develop & maintain effective communication
- Avoid over-commitment of key people and mentor new researchers

Lessons....

- People can take simple initiatives to encourage inter-disciplinary collaboration (*eg writing papers, running a workshop together*)
- Keep tasks and outcomes flexible so opportunities & ideas can be grabbed
- Inter-disciplinary research is time-intensive so avoid unnecessary duplication of effort
- Take on board lessons & improve own practices & responses
- It won't all happen at once- but significant moments can signal exciting turning points!